The Integrated Waste Management Board facilitated the recycled carpet. They used some of their money to help purchase this carpet, which would have not been standard issue for a building of this kind. It's laid in tiles with non-volitile organic compound based glues (another environmental feature). We have the ability to move these squares and reuse sections and move out of areas of great transit. Sections that are worn can be put in a corner where you can't see them anymore.

It extends the life of the carpet and the agreement in the lease of the carpet includes recycling at the end to the lease provided by the installer of the material."

—Winston H. Hickox, Secretary Cal/EPA

California's first significant regulation of solid waste disposal began with enactment of the Solid Waste Management and Resource Recovery Act of 1972 (Chapter 342, Statutes of 1972). This statute created the Solid Waste Management Board, giving it broad authority related to solid waste handling, disposal and reclamation. Principle responsibilities of the new agency were the creation of state solid waste management and resource recovery policy, development of minimum standards for solid waste handling and disposal, and approval of county solid waste management plans. Each of the state's 58 counties was given the responsibility of developing and submitting to the Board by January 1, 1976 a long-term solid waste management and resource recovery plan, subject to the approval of its incorporated cities.

In 1976, the Legislature created a permitting and enforcement program for solid waste facilities built around the concept of local enforcement agencies (Chapter 1309, Statutes of 1976). This fundamental element of the state's solid waste permitting and enforcement program remains intact today.

Early development of California's curbside recycling infrastructure was encouraged under a Waste Board grant program established by the Litter Control, Recycling and Resource Conservation Act (Chapter 1161, Statutes of 1977). Through grants to local government, nonprofits and private companies, the Board facilitated development of new curbside recycling technology and California became a national leader as these techniques became the standard for communities across the country. Local investigations of resource recovery (waste-to-energy) facilities were also supported through this program. In the early 1980s as many as 42 energy recovery plants were in the planning stages, although nearly all succumbed to environmental pressures. Only three were eventually built—in Long Beach, Commerce and Stanislaus County.

Long-term maintenance of waste disposal sites became a concern in the mid-1980s and in 1987 the Legislature enacted the Solid Waste Disposal and Site Hazard Reduction Act (Chapter 1319, Statutes of 1987). This law set new landfill requirements for financial assurances during operations and for planning and funding post-closure maintenance activities.

The California Integrated Waste Management Board was created and its authority and responsibilities were shaped by two pieces of legislation (AB 939 and SB 1322) signed into law as the Integrated Waste Management Act of 1989.

The Act established a new approach to managing California's waste stream, the centerpiece of which mandated goals of 25 percent diversion of each city's and county's waste from disposal by 1995, and 50 percent diversion in 2000, along with a process to ensure environmentally safe disposal of waste that could not be diverted.

The Board plays a central role promoting achievement of the waste diversion mandates that must be met by the state's local jurisdictions. It also fosters markets for recovered recyclables—a key component of its overall mission. And it enforces the legal provisions designed to protect the environment and the public's health and safety.

Before the passage of AB 939 (Sher, Chapter 1095, Statutes of 1989), Californians typically tossed all of their trash into galvanized cans to be hauled off to the local landfills. Some hardy souls did their own recycling of paper, cans and bottles, but there was no formal requirement in the state to do so.

After the passage of AB 939, recycling bins and special trash containers became familiar sites in California neighborhoods up and down the state. Paper, glass, aluminum, steel and plastic were among the first materials to be picked up routinely. Later, used oil, corrugated cardboard, and other materials were added.

The AB 939 (Sher) Legacy Unfolds

California continues to make progress toward the 50 percent diversion mandate. The statewide diversion rate reached 37 percent in 1999, continuing an upward trend that started with a rate of about 10 percent in 1989. The 1999 numbers also demonstrate how aggressively Californians have charted the shift from disposal to diversion: Between 1989 and 1999—a period of tremendous economic growth—statewide waste generation increased by 3.8 million tons, or 7 percent of total generation. Incredibly, during the same period, *statewide disposal increased by only 100,000 tons.* With searing clarity, this demonstrates that the programs and the infrastructure are working: Of the nearly 4 million additional tons of waste generation, 97 percent was diverted and source reduced.

AB 939, by Assembly Member (now Senator) Byron Sher, also set the stage for a series of reforms affecting waste management at the State and local levels, which resulted in the creation of a statewide collection infrastructure and a cultural shift that has elevated conservation of resources over the convenience of disposal. Sher has continued to be active with legislation to protect the environment, but AB 939 is an example of how a single law can produce a sea change in public behavior.

The Act, along with Title 14 and Chapter 15 of California's environmental regulations, also provided the foundation to put the state on course to comply with federal standards (Subtitle D) for managing solid waste, including the design, construction and operation of landfills. In 1993, California became one of the first states to receive federal approval to assume authority over its solid waste activities, having actually exceeded the federal standards through the adoption of more stringent State regulations. Since then the environmental performance of waste handling facilities in California have steadily improved and today rank the state as a world leader.

In the AB 939 era, the sight of fully packed garbage trucks delivering waste to local landfills (including some landfills made obsolete by new standards) has been supplanted by a network of material recovery, recycling and transfer station facilities, and state-of-the-art landfills. This network is recovering recyclables from hundreds of daily deliveries, and consolidating the residual solid waste into trailers for more efficient and less environmentally problematic transportation to regional landfills that are dozens to hundreds of miles away.

A Consensus for Change

When AB 939 became law, California was diverting only about 10 percent of the more than 40 million tons of waste generated in the state. Per capita waste disposal was more than twice the national rate. And much of this waste was being disposed of in aged, unlined landfills with the potential for leaking into valuable groundwater aquifers.

In one massive stroke, the Act delivered a plan to correct the course. It was forged from consensus, reflecting input from the full range of public and private sector stakeholders. It was passed by a Legislature controlled by one party and signed into law by a governor of another party. It was accepted by competing private sector interests, and embraced as a thoughtful approach to a daunting challenge.

> *…the new board…would be required to encourage planning that reduces, recycles and reuses garbage to the maximum extent possible…the Sher approach (AB 939) makes the most sense because it seeks to bring some regulatory order to the garbage mess.*
>
> —Editorial,
>
> Sacramento Bee, May 11, 1989

Estimated California Solid Waste Tonnages and Diversion Rates

	Estimated Diversion[b]	Reported Disposal[b]	Estimated Generation[b]	Estimated Diversion Rate
1989[a]	5.0	44.0	49.0	10%
1990	8.5	42.4	50.9	17%
1991	9.7	39.5	49.2	20%
1992	10.2	38.4	48.6	21%
1993	11.4	36.7	48.1	24%
1994	12.4	36.3	48.7	25%
1995	13.7	36.0	49.7	28%
1996	15.9	35.0	50.9	31%
1997	17.0	35.5	52.5	32%
1998	18.5	37.4	55.9	33%
1999	22.2	37.5	59.7	37%

[a] *1989 estimates are based on the best available data at that time. All later estimates are derived from base year data, including adjustments approved by the Board since 1996 that reflect jurisdictions' more extensive review of the data. These adjustments have increased the generation estimates, causing a jump in the diversion rate from 1989 to 1990.*

[b] *Data values in millions of tons.*

A decade later, California demonstrates that tremendous progress has been made in response to the Act and many of its achievements are permanent and represent a continuing benefit to the state in future years. Yet questions remain unanswered as to how the State will address the 50 percent requirements beyond 2000 and 2006.

Achievement in Response to the Act

Waste Diversion

Since 1990 Californians have diverted nearly 140 million tons of solid waste from landfills—enough to fill a line of garbage trucks that would circle the earth more than four times. California's rate of waste diversion has more than tripled since the time AB 939 was enacted.

In just 10 years, local governments have quantified and characterized their waste and identified, selected and voted on programs designed to achieve the mandates. In concert with the range of stakeholders and private industry, an infrastructure was and is being designed, specified, funded, built, equipped, blessed by governing bodies, and operated. Today, California has a broad-based infrastructure in place and growing that will accommodate diversion of at least half the state's entire waste stream.

California's progress is sternly tested by a number of factors:

- California's soaring economy, which greatly increases waste generation.
- The fact that many waste reduction programs being implemented by local jurisdictions still have not reached their full potential; others are coming on line and hold great promise.
- While California's marketplace may set the standard for accepting post consumer materials into the mix, segments of the economy remain untapped, and some are subject to fluctuating, and often meager, secondary materials markets.

The latter has presented a particularly difficult challenge for the Board as it devised strategies designed to stimulate markets and promote entrepreneurial activity without intruding into a marketplace that belongs to businesses and consumers.

Legislation has been signed affording local jurisdictions time extensions to meet the mandate. Senate Bill 1066 (Sher), in particular, enables the Board to grant extensions of up to five years beyond 2000 to jurisdictions that are struggling to meet the mandate but have in place a plan to comply with the law within the period of the extension.

With regard to the landfill capacity crisis, California's leadership in recycling is not, and never has been, exclusively a product of landfill capacity. While capacity may not be the clarion call it once was nationally, California remains a place where new landfill proposals are subject to an intense review often several years in length. More important, however, is the fact that the Act responded to the dire need for an integrated approach to waste management. This approach, which is enabling California to more sensibly handle its waste and conserve resources, is embodied in a new infrastructure, which will benefit the state for generations to come.

The Infrastructure

The state's new waste management infrastructure is the crown jewel in California's quiet revolution in waste management. Put into place by private industry and local government over the last decade, it represents an investment of hundreds of millions of dollars. As an infrastructure now ensconced in every region of the state, its benefits to California will be delivered not just over the short term, but well into the future.

Where once only landfills stood, scattered across California today are technologically and environmentally sound facilities adeptly designed to divert waste for reuse. Material recovery facilities, transfer stations, composting operations, and other facilities are an integral part of California's waste handling activities.

Other important elements of the infrastructure include waste reduction and recycling programs created by local jurisdictions, and partnerships of public and private sector interests working to break down barriers and expand material recovery opportunities for local governments and private businesses.

One of the ongoing benefits of these resilient partnerships is the growing acceptance among private enterprise that waste reduction and recycling activities are good for the bottom line as well as the environment. Programs integrated into business operations large and small are reaping millions of dollars in annual savings through reuse and avoided disposal costs.

Public Commitment

Californians, for their part, have embraced this effort that, above most other environmental protection programs, allows everyone the chance to participate—to make a difference by reducing, reusing, recycling, and buying products made with recovered materials. Today, an estimated 28 million Californians have access to curbside recycling, and, since passage of the Act, residential yard waste collection has expanded by an astounding 450 percent.

While recycling and waste reduction have become common household practices, many people are taking action outside the home as well. For instance, eliminating excessive packaging for many items, including compact discs and fast food meals, was the direct result of consumer demand. Interestingly, the intensity of this consumer awareness is partly driven by the recycling message that children bring home from school.

Public Health and Safety

The Board's efforts over the last decade have substantially improved public health and safety as it relates to the siting and operation of waste handling facilities including landfills:

- The Board certified 56 local enforcement agencies that ensure operating standards are adhered to at the local level.
- The Board revised and brought up to date more than 500 permits to reflect new performance standards.
- The number of long-term violators has been reduced from 48 to 18.
- Nearly 90 closed, illegal, or abandoned waste sites have been, or are in the process of being cleaned up. The Board, through the State-funded tire pile cleanup program, has removed more than 10 million tires from 30 sites around the state.

The Board has also been innovative in its efforts to build a solid regulatory framework. In 1994, the Board established a tiered permitting structure to ensure that waste facilities are regulated at a level reflecting the environmental risks associated with their particular operations. This tiered approach—lauded by industry, local government, and environmental interests—is one of several reforms undertaken by the Board to simplify, streamline, and otherwise improve regulatory efficiency.

Toward Full Implementation of the Act

Priority Areas

In 1997 the Board, through collaboration with affected parties, identified four key elements to achieving 50 percent diversion of waste: greater recycling and reuse of *organic materials and construction and demolition waste,* which collectively account for nearly half of the state's waste stream; improving *facility compliance;* and *assistance to local jurisdictions* accountable for meeting the mandate. While considerable progress has been realized in all areas, more work remains to be done, and several obstacles must be overcome before 50 percent is achieved.

Market Development

Expanding markets for recovered recyclables is absolutely essential to making further progress in the state's waste diversion efforts. Central to this is solidifying a "buy recycled" ethic, especially in the commercial sector. To date, the Board has aggressively assumed an advocacy role in support of market development, implementing key initiatives outlined

in its 1993 and 1996 market development plans. As of result of these plans and the market development aspects of SB 1066, the Board sought and received additional funds to bolster its efforts.

The Board's Recycling Market Development Zone program is the first of its kind in the nation. These enterprise zones for recycling-based manufacturing activity today number 40 around the state. Startup and expanding recycling businesses located in the zones are eligible for technical and financial assistance, including low-interest loans and tax credits.

Through this program, more than 4,000 new jobs have been created, and each year more than 7.6 million tons of waste is being diverted.

The Board's statutory enforcement role also fosters the expansion of markets. In the area of plastics, for instance, the Board is responsible for ensuring minimum recycling rates for a wide range of plastic packaging material. Through oversight, technical assistance, and (when necessary) compliance agreements with product manufacturers, the Board spurs expanded recycling and use of recycled plastics in the marketplace.

All these efforts will be pivotal in the commercial sector, which generates more than half of the state's waste. While many businesses have embraced the benefits of waste reduction and recycling, most have yet to capitalize upon historically untapped resources in recovered recyclables. Since businesses are not subject to the mandates of the acts, the state's challenge will continue to be helping private companies identify prudent, productive voluntary programs, while encouraging cooperative efforts between private enterprise and local jurisdictions.

Public Outreach and Environmental Education

As required by law, a public education and outreach component exists for virtually every Board program. The Board's efforts provide an opportunity to improve education and make school operations more resource efficient, through a variety of initiatives, including the Closing the Loop curriculum, which facilitates partnerships among environmental organizations and provides grant funding for school waste reduction programs.

State Agency Responsibility

State agencies are also required by law to establish recycling programs and buy recycled-content products. The Board promotes and monitors progress by each State agency through its Project Recycle program and the State Agency Buy Recycled Campaign

State agencies should be an example for others and a force around California in the area of recycling and resource conservation.

Some progress has been made. Under Project Recycle, the number of State facility recycling programs has increased from 150 in 1991 to more than 1,800 today; the amount of material recycled during this period has expanded from only 2,000 tons a year to more than 63,000 tons a year. Nevertheless, the overall level of performance trails far behind the percentages of local jurisdictions striving to meet the requirements of the Act.

To address this need, 1999 legislation established State agency diversion mandates of 25 percent in 2002 and 50 percent in 2004, requiring each agency to also adopt an integrated plan to achieve the mandates. The Board is now assisting agencies in developing their plans

The Board is also the driving force behind the State's Green Building Task Force whose goal is to institutionalize sustainable building practices as part of State construction projects in an efficient, practical and cost-effective manner.

Tires

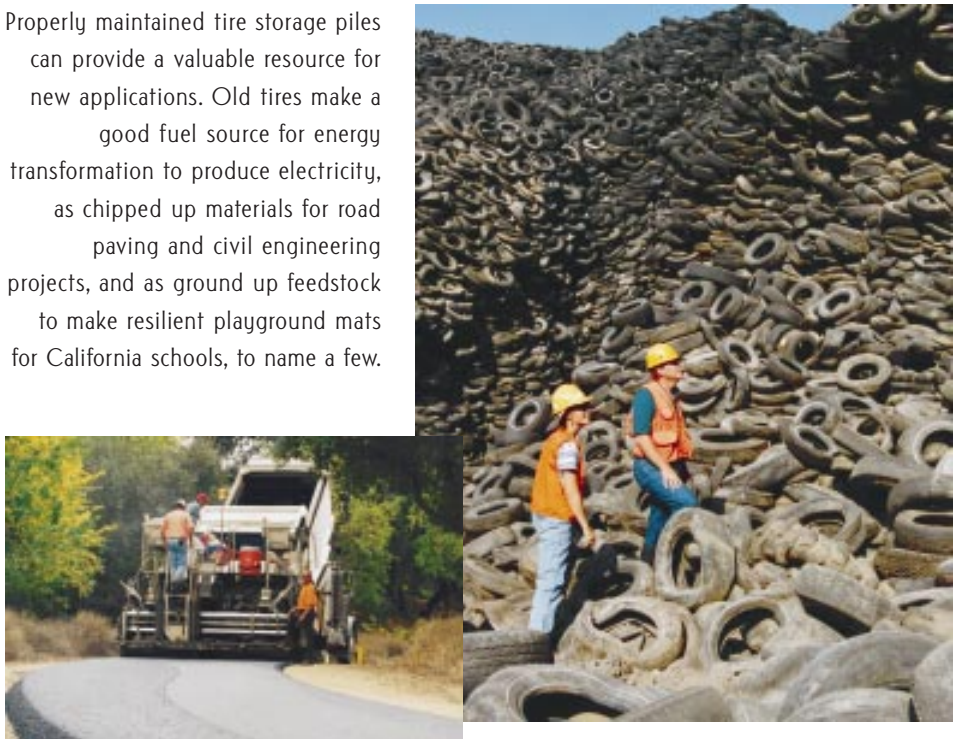
California generates approximately 30 million tires every year. It is generally accepted that using products made from used tires is the ultimate solution to the waste tire problem.

Since 1990–91, market development expenditures related to used tires has totaled $13.95 million. Areas of special emphasis include use of rubberized asphalt concrete and playground mats. To promote greater acceptance and use of rubberized asphalt concrete by local governments, the Board has allocated more than $1.5 million to establish two technology centers located in Los Angeles and Sacramento.

The Board has also facilitated secondary uses for waste tires through its waste tire stabilization and abatement program. Of the 10 million tires removed from illegal and abandoned sites around the state since 1995, 84 percent went to productive end uses, including use as alternate daily cover, in waste-to-energy facilities, and in civil engineering applications. The remainder went to legal disposal.

Set to expire on January 1, 2001, the Board's tire program was reauthorized and strengthened by new legislation signed into law in September 2000.

Properly maintained tire storage piles can provide a valuable resource for new applications. Old tires make a good fuel source for energy transformation to produce electricity, as chipped up materials for road paving and civil engineering projects, and as ground up feedstock to make resilient playground mats for California schools, to name a few.



Old tires are recycled into chipped up materials for road paving and civil engineering projects.

Used Oil

The Board's used oil and household hazardous waste program develops and promotes alternatives to the illegal disposal of household hazardous waste. Created to promote proper handling, safe disposal and recycling, the programs are providing added benefit to the state's efforts to reduce storm water pollution as a consequence of public awareness messages that warn about dumping in storm drains.

Progress and Promise

While a number of issues and action items demanded by the drive toward 50 percent diversion remain, California's response to the Integrated Waste Management Act has been a success and underscores considerably more than numerical progress. It reflects a sea change in attitude and action. With an imposing infrastructure in place, programs coming on line and maturing, and millions of Californians committed to making a difference at home and as consumers, California's campaign to more sensibly handle its waste is well positioned to achieve greater success.